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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,567	08/27/2001	Pamela S. Trammel	LWM-A110	5834

7590 07/18/2002  
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EXAMINER
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RUSSELL, VOLITA S

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/940,567

Applicant(s)

TRAMMEL ET AL.

Examiner

Volita S. Russell

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

1. This office action is in response to application filed on 8/27/01. Claims 1-22 are currently pending.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Waits (3,649,945).

Re claims 1, 3, 9 and 11, Waits discloses a method of thin film resistor contact comprising the steps of: depositing a tungsten resistive layer (10) on a top dielectric film (14) of an integrated circuit (Figs. 1; col. 2, lines 19-28); depositing an aluminum interconnect layer (16, 18) over the resistive layer (Fig. 1; col. 2, lines 51-70); etching the interconnect layer to define a heater interconnect, wherein the heater interconnect is disposed over the resistive layer and has a first width (col. 3, lines 13-16); masking the heater interconnect (col. 2, lines 43-50); and etching the resistive layer to define a resistive heater, wherein the heater is disposed beneath the interconnect and has a second width larger than the first (Fig. 1, col. 2, lines 40-50).

3. Claims 1-4, 7-10, 12, 15-18 and 20-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Xu et al. (2002/75346A1).

Re claims 1, 3, 9, 17 and 21-22, Xu et al. discloses a method of fabricating a fluid-jet printhead comprising the steps of: depositing a tungsten resistive layer (30) on a top insulating layer (20) of (Figs. 1-2; pg. 2, para. 27, lines 1-5); depositing an aluminum interconnect layer (40) over the resistive layer such that the tungsten layer functions as an adhesion (Figs. 1-2; pg. 2, para. 27, lines 6-9); etching the interconnect layer to define a heater interconnect, wherein the heater interconnect is disposed over the resistive layer and has a first width (Figs. 1-2; pg. 2, para. 28, lines 3-4); masking the heater interconnect (Figs. 1-2; pg. 2, para. 28, lines 1-2); masking the heater interconnect and a region of the tungsten to be defined as a resistive heater (Figs. 1-2; pg. 3, para. 39, lines 1-6); and etching the resistive layer to define a resistive heater, wherein the heater is disposed beneath the interconnect and has a second width larger than the first (Figs. 1-2, pg. 3, para. 28, lines 9-13).

Re claim 2, 10 and 18, Xu et al. disclose wherein the heater interconnect is defined to include a heater conduct region between a first contact pad and a second contact pad such that a current between the first and second contact pad is conducted through the resistive heater (pg. 4, para. 41, lines 1-8).

Re claims 4, 12 and 20, Xu et al. disclose wherein the difference between the first width of the interconnect and second width of the heater is determined to decrease an alignment sensitivity of lithography process for masking the interconnect (pg. 1, para. 5, lines 6-9).

Re claims 7-8 and 15-16, Xu et al. disclose the step of using a dry etch or ion assisted plasma etch process to etch the resistive tungsten layer (pg. 3, para. 5-6).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-6, 11, 13-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al. (2002/75346A1) in view of Bischel et al. (2002/18636A1).

Xu et al. disclose the method as applied to claims 1-4, 7-10, 12, 15-18 and 20-22 above.

Re claims 5-6, 11, 13-14 and 19, Xu et al. do not disclose the dry (or reactive ion etching) and wet etching of the aluminum interconnect layer, wherein the wet etching does not attack the tungsten layer.

However, Bischel et al. disclose wherein an aluminum layer is dry (RIE) or wet etched for waveguide fabrication (pg. 6, para. 44, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a dry (RIE) or wet etching process as taught by Bischel for the interconnect of Xu to define and form the heater interconnect. This is because of wet and dry processes are basis for patterning a layer and less expensive.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Volita S. Russell whose telephone number is 703.306.4826. The examiner can normally be reached on Monday - Thursday and every other Friday. 8am-6 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 703.308.4940. The fax phone numbers for the organization where this application or proceeding is assigned are 703.308.7722 for regular communications and 703.308.7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0956.

  
WSR

July 15, 2002

  
CARL WHITEHEAD, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800